

PU030180

Serial No.: 10/561,361

Listing and Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently amended) An encoder for encoding a sequence of pictures as a plurality of block transform coefficients to meet network traffic model restrictions, the encoder comprising an iterative loop for selecting one of a plurality of quantization parameter values for each picture, said iterative loop comprising:

pre-encoding means for pre-encoding the sequence of pictures for each of a plurality of quantization parameter values;

selecting means for selecting for each picture of the sequence one of the plurality of quantization parameter values responsive to the quantization parameter values and bitrate operating points of the neighboring pictures in a sliding predetermined time window; and

encoding means for encoding each picture of the sequence using the quantization parameter value selected for that picture.

2. (Canceled)

3. (Currently amended) An encoder as defined in Claim 2 1, wherein the quantization parameter value selected for a sliding the time window encodes a window's worth of pictures at about a target picture rate.

4. (Currently amended) An encoder as defined in Claim 2 1, wherein the quantization parameter value selected for a sliding the time window encodes a window's worth of pictures at about a target bitrate.

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5. (Currently amended) An encoder as defined in Claim 2 1, wherein the quantization parameter values selected for each picture in the video sequence and for the neighboring pictures in the same time window as the given picture are chosen to encode the pictures to be transmitted within a time window of preset duration to be encoded within a target number of bits.

6. (Currently amended) An encoder as defined in Claim 2 1, wherein the sequence of video pictures comprises a group of pictures.

7. (Currently amended) An encoder as defined in Claim 2 1, wherein the sequence of video pictures comprises pre-stored video content.

8. (Currently amended) An encoder as defined in Claim 2 1, wherein a portion of sequence of video pictures to be transmitted within a preset time duration meets a network traffic model restricting the number of bits to be transmitted within the preset time duration.

9. (Currently amended) An encoder as defined in Claim 2 1, wherein the selecting means for selecting one of the plurality of quantization parameter values for each picture of the video sequence comprises multi-pass encoding means to optimize the quantization parameter value selected to encode each picture.

10. (Currently amended) An encoder as defined in Claim 2 1, wherein the pre-encoding means for pre-encoding the sequence of pictures for each of the plurality of quantization parameter values comprises means for re-using motion vector values.

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11. (Currently amended) An encoder as defined in Claim 1 in combination with a decoder for decoding encoded block transform coefficients that meet network traffic model restrictions to provide reconstructed pixel data, the decoder comprising a variable length decoder for decoding video data corresponding to a the time window of having a preset duration according to a network traffic model.

12. (Currently amended) A codec comprising an encoder as defined in Claim 1, and a decoder for decoding encoded block transform coefficients that meet network traffic model restrictions to provide reconstructed pixel data, the decoder comprising a variable length decoder for decoding video data corresponding to a decoder time window of having a preset duration according to a the network traffic model. 43. ~~(original) A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform program steps for performing video rate control to meet network traffic model restrictions, the program steps comprising:~~

- ~~pre-encoding the sequence of pictures for each of a plurality of quantization parameter values;~~
- ~~selecting for each picture of the sequence one of the plurality of quantization parameter values responsive to the quantization parameter values and bitrate operating points of the neighboring pictures in the sliding time window; and~~
- ~~encoding each picture of the sequence using the quantization parameter value selected for that picture.~~

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13. (Currently amended) ~~A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform program steps for performing video rate control to meet network traffic model restrictions, the program steps comprising:~~

A computer program product comprising a computer useable medium having computer readable program code embodied thereon for use in a video encoder, the computer program product comprising:

program code for pre-encoding the sequence of pictures for each of a plurality of quantization parameter values;

program code for selecting for each picture of the sequence one of the plurality of quantization parameter values responsive to the quantization parameter values and bitrate operating points of the neighboring pictures in the sliding time window; and

program code for encoding each picture of the sequence using the quantization parameter value selected for that picture.

14. (Currently amended) A method of performing video rate control on a sequence of pictures to meet network traffic model restrictions, the method comprising:

pre-encoding the sequence of pictures for each of a plurality of quantization parameter values;

selecting for each picture of the sequence one of the plurality of quantization parameter values responsive to the quantization parameter values and bitrate operating points of the neighboring pictures in ~~the sliding a~~ predetermined time window; and

encoding each picture of the sequence using the quantization parameter value selected for that picture.

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15. (Original) A method as defined in Claim 14 wherein the sequence of pictures comprises a sequence of video frames.

16. (Original) A method as defined in Claim 14 wherein the quantization parameter value selected for a sliding window encodes a window's worth of pictures at about a target bitrate.